1 Labour and normal birth

Cathy Charles

Introduction

'Undisturbed birth . . . is the balance and involvement of an exquisitely complex and finely tuned orchestra of hormones' (Buckley, 2004a).

The most exciting activity of a midwife is assisting a woman in labour. The care and support of a midwife may well have a direct result on a woman's ability to labour and birth her baby. Every woman and each birthing experience is unique.

Many midwives manage excessive workloads and, particularly in hospitals, may be pressured by colleagues and policies into offering medicalised care. Yet the midwifery philosophy of helping women to work with their amazing bodies enables many women to have a safe pleasurable birth. Most good midwives find ways to provide good care, whatever the environment, and their example will be passed on to the colleagues and students with whom they work.

Some labours are inherently harder than others, despite all the best efforts of woman and midwife. A midwife should be flexible and adaptable, accepting that it may be neither the midwife's nor the mother's fault if things do not go to plan. The aim is a healthy happy outcome, whatever the means.

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This chapter aims to give an overview of the process of labour, but it is recognised that labour does not simplistically divide into distinct stages. It is a complex phenomenon of interdependent physical, hormonal and emotional changes, which can vary enormously between individual women. The limitation of the medical model undermines the importance of the midwife's observation and interpretation of a woman's behaviour.

Facts and recommendations for care

- Women should have as normal a labour and birth as possible, and medical intervention should be used only when beneficial to mother and/or baby (DoH, 2004, 2007).
- Midwife-led care gives the best outcomes worldwide: more spontaneous births, fewer episiotomies, less use of analgesia, better breastfeeding rates. Women use less analgesia, and report that they feel more in control of their labour (Hatem *et al.*, 2008).
- Women should be offered the choice of birth either at home, in a midwife-led unit or in an obstetric unit (NICE, 2007), although only 83% report being offered any sort of choice (CQC, 2010). While an obstetric unit may be advised for women with certain problems, up to two thirds of women are suitable for midwife-led units or home birth (DoH, 2007), and the woman has a right to choose where she gives birth.
- Women should be offered one-to-one care in labour (NICE, 2007). The presence of a caring and supportive caregiver has been proved to shorten labour, reduce intervention and improve maternal and neonatal outcomes (Green *et al.*, 2000; Hodnett *et al.*, 2011).
- Increasing numbers of women rate midwifery support as positive (CQC, 2010), although a few midwives are regarded as 'off-hand', 'bossy' or 'unhelpful' (Redshaw *et al.*, 2007).
- 5–6% of mothers develop birth-related post-traumatic stress disorder (Kitzinger and Kitzinger, 2007).
- Over two-thirds of Heads of Midwifery report they have insufficient midwife numbers to cope with their unit workload (RCM, 2009) which impacts on the quality of midwifery care women receive, reducing the chance of one-to-one care.
- The attitude of the caregiver seems to be the most powerful influence on women's satisfaction in labour (NICE, 2007).
- 89% of fathers attend the birth (Redshaw and Heikkila, 2010) but there are other relationships e.g. lesbian couples, who have been less closely studied.

Mode of delivery statistics

- The normal birth rate for England was 63% in 2010/11; in 2009/10 it was 60% in Scotland, 61% in Wales and 56% in Northern Ireland (BirthChoice UK; ESRI, 2011; ONS, 2012)

- The instrumental delivery rate was 12.5% for NHS hospitals in 2010/11; 16.7% in Northern Ireland (ESRI, 2011; ONS, 2012)
- The episiotomy rate for England is 8.3% for a normal birth; almost 20% overall (BirthChoice UK; ONS, 2012).
- The caesarean section (CS) rate for England in 2010/11 is around 25% (ONS, 2012).

The birth environment

In what kind of surroundings do people like to make love? A brightly lit bare room with a high metal bed in the centre? Lots of background noise, with a series of strangers popping in and out to see how things are going? The answers to these questions may seem obvious. If we accept that oxytocin levels for sexual intercourse are directly affected by mood and environment, why is it that women in labour receive less consideration? The intensely complex relationship between birth and sexuality is an increasing source of study and reflection by birth writers (Buckley, 2010).

Once women gave birth where and when they chose, adopting the position they wanted, using their instinctive knowledge to help themselves and each other. Recently birth has become more medicalised, and the place of birth more restricted. No-one would deny that appropriate intervention saves lives. For some women an obstetric unit is the safest choice, and for others it *feels like* the safest, so that makes them feel happier. But does it have to be the choice for everyone?

The clinical environment and increased medicalisation of many birth settings directly affects a woman's privacy and sense of control (Walsh, 2010a). Hodnett *et al.* (2010) have demonstrated that home-like birthing rooms ('alternative settings') even within an obstetric unit, lead to increased maternal satisfaction, reduced intervention and satisfactory perinatal outcomes. This may be due partly to the fact that women simply feel more relaxed at home, or in a home-like setting. However, simply changing the curtains and hiding the suction machine does not always mean a change of philosophy of care. A more telling factor may be that the type of midwives who choose to work in the community or birth centre, or who gravitate towards more home-like rooms, are those with a less interventionist approach.

Women should be able to choose where to give birth; it would be still more wonderful if women could simply decide *in labour* whether they wish to stay at home, or go to a birth centre or an obstetric unit, and indeed if they could change their mind during labour. Such choices do exist, but UK service provision is patchy, and in many countries women have little or no choice.

Whilst it has been estimated that at least two thirds of women are suitable for labour at home or a midwife-led birthing centre (DoH, 2007), for many reasons the majority of mothers and midwives in the UK will still meet in labour in an acute hospital setting. It is incumbent on all midwives to make the environment for a woman in labour, irrespective of its location, warm, welcoming and safe. Always remember that the quality of the caregiver in labour is the thing that most strongly influences a woman's satisfaction with her labour (NICE, 2007).

The *Royal College of Midwives Campaign for Normal Birth* has produced ten top tips to enhance women's birth experience: see Box 1.1.

Box 1.1 Ten top tips for normal birth (RCM, 2010).

(1) Wait and see

The single practice most likely to help a woman have a normal birth is patience. In order to be able to let natural physiology take its own time, we have to be very confident of our own knowledge and experience.

(2) Build her a nest

Mammals try to find warm, secure, dark places to give birth – and human beings are no exception.

(3) Get her off the bed

Gravity is our greatest aid in giving birth, but for historical and cultural reasons (now obsolete) in this society we make women give birth on their backs. We need to help women understand and practise alternative positions antenatally, feel free to be mobile and try different positions during labour and birth.

(4) Justify intervention

Technology is wonderful, except where it gets in the way. We need to ask ourselves 'is it really necessary?' And not to do it unless it is indicated.

(5) Listen to her

Women themselves are the best source of information about what they need. What we need to do is to get to know her, listen to her, understand her, talk to her and think about how we are contributing to her sense of achievement.

(6) Keep a diary

One of the best sources for learning are our own observations. Especially when we can look back at them and realise what we have learned and discovered since then. Write down what happened today: how you felt, what you learnt.

(7) Trust your intuition

Intuition is the knowledge that comes from the multitude of perceptions that we make which are too subtle to be noticed. With experience and reflection we can understand what these patterns are telling us – picking up and anticipating a woman's progress, needs and feelings.

(8) Be a role model

Our behaviour influences others – for better or worse. Midwifery really does need exemplars who can model the practices, behaviour and attitudes that facilitate normal birth. Start being a role model today!

(9) Give her constant reassurance – be positive

Nothing in life prepares a woman for labour. Your reassurance that contractions and emotions are all part of the normal process of giving birth is vital. Do you believe in her strength and ability to give birth normally? How equipped are you to support and encourage women through the peaks and troughs? You may be the only constant anchor during woman's labour to give her constant reassurance – be positive.

(10) From birth to abdomen – skin to skin contact

Breastfeeding gets off to a better start when mothers and their babies have time together – beginning at birth. Immediate skin to skin contact allows them to remain together and provide opportunities for babies to feed on demand for an unlimited time, stay warm and cry less. Mothers learn to recognise their baby's cues and the baby reciprocates. The relationship becomes tender and loving – a connection that lasts a lifetime begins from birth to abdomen.

www.rcmnormalbirth.org.uk/practice/ten-top-tips

Reproduced with permission (RCM, 2010).

Signs that precede labour

Women often describe feeling restless and strange prior to going into labour, sometimes experiencing energy spurts or undertaking 'nesting' activities. Physical symptoms may include:

- low backache and deep pelvic discomfort as the baby descends into the pelvis
- upset stomach/diarrhoea
- intermittent regular/irregular tightening for days/weeks before birth
- loss of operculum ('show'); usually clear or lightly bloodstained
- increased vaginal leaking or 'cervical weep'; and/or
- spontaneous rupture of membranes (SROM) – usually unmistakable; sometimes less so, particularly if the head is well engaged (see Boxes 1.2 and 1.3 for diagnosis and management of SROM). See Chapter 13 for more information on preterm SROM.

Box 1.2 Diagnosis of spontaneous ruptured membranes (SROM).

Woman's history

- This is usually conclusive in itself (Walsh, 2001a).
- Clarify the time of loss, the appearance and approximate amount of fluid.

Observe the liquor

- The pad is usually soaked: if no liquor evident ask the woman to walk around for an hour and check again.
- Liquor may be
  - Clear, straw-coloured or pink: it should smell fresh.
  - Bloodstained: if mucoid contamination this is probably a show – but perform CTG if you doubt this (NICE, 2007).
  - Offensive smelling: this may indicate infection.
  - Meconium-stained (green): a term baby may simply have passed meconium naturally, but always pay close attention to meconium. Light staining is less of a concern, but dark green or black colouring, and/or thick and tenacious meconium means it is fresh, and this could be more serious. NICE (2007) advise continuous electronic fetal monitoring (EFM) for significant meconium, and 'consider' continuous EFM for light staining, depending on the stage of labour, any other risks, volume of liquor and FHR.

Speculum examination

- If the history is unmistakable, or the woman is in labour there is no need for a routine speculum examination (NICE, 2007). However if the head is high consider it, as there is a small risk of cord prolapse.
- Avoid vaginal examination unless the woman is having regular strong contractions and there is a good reason to do so: it risks ascending infection. However there is a degree of paranoia about this: the evidence base is weak (NICE, 2007): it is not a *disaster* if VE is done, just preferable to avoid.
- To perform:
  - Suggest the woman lies down for a while to allow liquor to pool.
  - Lubricate the speculum and gently insert it: the mother may find raising her bottom (on her fists or a pillow) allows easier and more comfortable access.
  - If no liquor visible ask her to cough: liquor may then trickle through the cervix and collect in the speculum bill.
  - Amnisticks (nitraxine test) are no longer recommended due to high false positive rates.

Not all women seek advice at this stage. If they do, the midwife should act as a listener and reassure the woman that these prelabour signs are normal. Avoid negative terms such as 'false labour/alarm'.

Prelabour rupture of membranes at term

Some women experience prelabour rupture of the membranes (PROM) at term (see Box 1.3 and Chapter 19). Risks include infection, cord prolapse (see page 272) and sometimes iatrogenic consequences of intervention but most women go into labour spontaneously and have a good outcome.

Box 1.3 Management of prelabour rupture of membranes (PROM) at term.

Await labour. The woman can await the onset of labour in the comfort of her home, away from potential infection and unnecessary interventions.

Check temperature. Ask her to do this 4-hourly during waking hours (NICE, 2007).

Observe liquor and report any change in colour or smell. There is no need for vaginal swabs, or nitrazine/ferning tests (NICE, 2007).

Listen to the fetal heart. Intermittent ausculatation is fine: there is no need for a CTG unless significant meconium-stained liquor observed (NICE, 2007). Observe fetal activity.

General advice

- Suggest the woman avoids sexual intercourse or putting anything into her vagina.
- Suggest she wipes from front to back after having her bowels opened.
- Inform her that bathing or showering are not associated with any increase in infection.
- Advise her to report any reduced fetal movements, uterine tenderness, pyrexia or feverish symptoms.
- Ask her to come back after 24 hours if labour has not started.
- Tell her that 60% of women go into labour within 24 hours.

If no labour within 24 hours (NICE, 2007)

- NICE advises induction of labour after 24 hours of PROM (see IOL chapter). The woman will then be advised to remain in hospital for 12 hours afterwards so the baby can be observed.
- If a woman chooses to wait longer, continue as above and review every 24 hours.
- After birth observe asymptomatic babies (ROM >24 hours) for 12 hours: at 1 hour, 2 hours then 2 hourly for 10 hours: observe general well-being, chest movements and nasal flare, colour, tone, feeding temperature, heart rate and respiration. Ask the mother to report any concerns.

First stage of labour

There is much debate about whether it is helpful to divide labour into 'stages'. Walsh (2010b) among any others, challenges this: 'The division of the first stage of labour into latent and active is clinician-based and not necessarily resonant with the lived experience of labour'.

Midwives should always be aware of the limitations of rigid categories, but it is also true that certain broad generalisations are helpful to enable the midwife to offer the appropriate support to a woman. With some reservation, the following definitions are offered:

Latent stage

Characteristics of latent stage

NICE (2007) describes this as: 'a period of time, not necessarily continuous, when:

- there are painful contractions, and
- there is some cervical change, including cervical effacement and dilatation up to 4 cm'.

Midwifery care in latent phase

Women may be excited and/or anxious. They will need a warm response and explicit information about what is happening to them. In very early labour they may need just verbal reassurance; they may make several phone calls.

Ideally, home assessment is preferable to hospital; it reduces analgesia use, labour augmentation and CS and appears cost-effective. Women report greater feelings of control and an improved birth experience (Walsh, 2000a; Spiby *et al.*, 2008). If women do come to hospital, evidence supports an assessment unit separate from the labour ward, reducing labour ward stay, increasing perceived sense of control and reducing analgesia use (Hodnett *et al.*, 2008).

Some women experience a prolonged latent phase, which may be tiring and demoralising, requiring more support (see 'Prolonged latent phase', Chapter 9). Women may undergo repeated visits/assessments and feel something is going wrong. Most women however cope well.

The first midwife contact is important and it will establish trust:

- Greet the woman warmly and make her feel special.
- Observe, listen and acknowledge her excitement.
- Be positive but realistic: many women, especially primigravidae, can be overoptimistic about progress.
- Women whose first language is not English may need extra reassurance, careful explanations and sensitivity to personal and cultural preferences. CMACE (2011) highlights the importance of accessing translation services. A translator that the woman is comfortable with should have been arranged prior to labour, but this is sometimes not the case. Some hospitals subscribe to 'languageline' or have other local arrangements. In reality many women go through labour with little or no adequate translator.
- Physical checks include:
  - **Baseline observations.** See Table 1.1.
  - **Urinalysis.** NICE (2007) recommend testing for protein at labour onset, although this is debatable for normotensive women since vaginal secretions, e.g. liquor, commonly contaminate the sample so protein is often ignored.
  - **Abdominal palpation.** Ascertain fundal height, lie, presentation, position and engagement (see Figure 1.1). Ask about fetal movements (FMs): more/less than usual?

- **Fetal heart (FH) auscultation.** See Chapter 3. Offer intermittent auscultation (IA) not a 'routine admission trace' for low-risk women (NICE, 2007) (see Chapter 3).

- **Vaginal examination** (VE) is not usually warranted if contractions are <5 min apart and lasting <60 seconds unless the woman really wants one.
- **Ruptured membranes** (see Box 1.2 for diagnosis) are usually obvious. If the woman is contracting, there is no need for a speculum examination.

Table 1.1 Maternal observations in labour.

Observation	Frequency	Significance
Blood pressure Normal range: Systolic: 100–140 mmHg Diastolic: 60–90 mmHg (NICE, 2011)	Tested at labour onset then hourly (NICE, 2007)	**Hypertension** can be caused by ○ Anxiety and pain ○ General anaesthesia ○ Essential hypertension or pre-eclampsia (See Chapter 20 for definitions of pre-eclampsia) **Hypotension** can be caused by ○ An epidural/top-up ○ Aortocaval occlusion secondary to lying supine ○ Haemorrhage and hypovolaemic shock
Pulse rate Normal range: 55–90 bpm	Tested at labour onset then hourly when checking the fetal heart (NICE, 2007)	**Tachycardia ≥100 bpm** can be caused by ○ Anxiety, pain, hyperventilation ○ Dehydration ○ Pyrexia, infection ○ Obstructed labour ○ Haemorrhage, anaemia and shock **Bradycardia ≤55 bpm** can be caused by ○ Rest and relaxation ○ Drugs, e.g. opiates, magnesium sulphate ○ Cardiac problems
Temperature Normally 36–37°C (97–98.4°F)	Tested at labour onset then 4-hourly (NICE, 2007) or hourly if in birthing pool	**Pyrexia >37.5°C** can be caused by ○ Infection ○ Epidural – usually low-grade pyrexia but rises with time ○ Dehydration ○ Overheated birth pool (see Chapter 7)

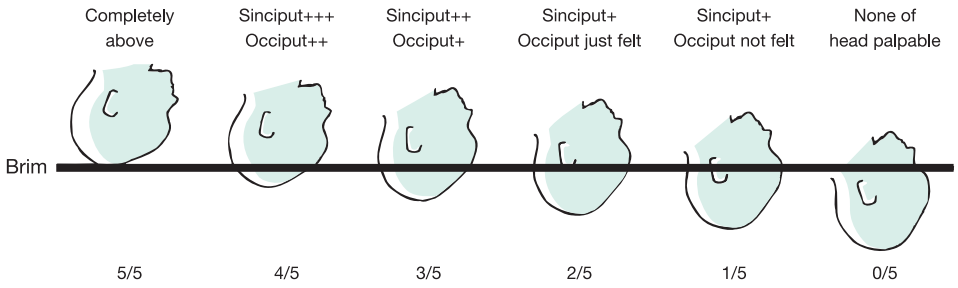

Fig. 1.1 Engagement of the fetal head: fifths palpable by abdominal palpation.

Established first stage of labour

Characteristics of established first stage

In early labour:

- The woman may eat, laugh and talk between/during contractions.
- Contractions become stronger, increasingly painful, 2–5 minutes apart lasting ≤60 seconds.
- The cervix is mid to anterior, soft, effaced (not always fully effaced in multiparous women) and <4 cm dilated.

As labour advances:

- She usually becomes quieter, behaves more instinctively, withdrawing as the primitive parts of the brain take over (Ockenden, 2001).
- During contractions she may become less mobile, holding someone/something during a contraction or stand legs astride and rock her hips. She may close her eyes and breathe heavily and rhythmically (Burvill, 2002), moaning or calling out during the most painful contractions.
- Talking may be brief, e.g. 'water' or 'back'. This is not the time for others to chat. Lemay (2000) echoes Dr Michel Odent's consistent advice: 'the most important thing is *do not disturb the birthing woman*'. Midwives are usually adept at reading cues. Others unfamiliar with labour behaviour, including her partner and students, may need guidance to avoid disturbing her, particularly during a contraction. Before FH auscultation, first speak in a quiet voice or touch the woman's arm; do not always expect an answer.

Midwifery care in established first stage

Make sure your manner is warm. Involve her partner. Clarify how they prefer to be addressed. Ideally, the woman will have already met her midwife antenatally. A good midwife, familiar or not, will quickly establish a good rapport. Kind words, a constant presence and appropriate touch are proven powerful analgesics.

- **Take a clear history:**
  - Discuss previous pregnancies, labours and births
  - Look for relevant risk factors.
  - Ask about vaginal loss, 'show' and time of onset of tightenings.
- **Review the notes:**
  - Ultrasound scan (USS) for dates and placental location
  - Blood results: group, rhesus factor, antibodies, recent haemoglobin
  - Any allergies.
- **Offer continuous support**. Cochrane review (Hodnett *et al.*, 2011) found that continuous female support in labour:
  - reduces use of pharmacological analgesia including epidural
  - makes spontaneous birth more likely (fewer instrumental/CS births)
  - shortens labour
  - increases women's satisfaction with labour.

- **Supporting male birth partner.** Some men don't cope well in hospitals, or when their partner is in pain. Encourage them to take frequent breaks, eat and drink. Some men are clumsy when offering support, annoying the woman. Men may also worry about the birth noises women make. Communicating quietly, and giving gentle guidance on anticipating his partner's needs will help both partners.

Supporting a woman and her partner in labour is an intense relationship, hour after hour, and can be physically and mentally demanding. Providing emotional support, monitoring labour and documenting care may mean that the midwife can hardly leave the woman's side. Involving the birth partner(s) or a doula can both support the midwife and enhance the quality of support the woman receives. There should be no restriction on the number of birth partners present, although be very sure that they are the people the mother really wants. Sometimes women accede to the desires of sisters or friends to be at the birth. Birth however is not a spectator sport: if they are chatting amongst themselves and not supporting the woman then the midwife may need to offer them some direction or tactfully suggest they leave the room.

- **'Listen to her' (RCM, 2010).** Talk through any birth plans early, while the woman is still able to concentrate. As labour progresses, observe her verbal and body language and tell her how well she is coping, offering simple clear information. Try not to leave her alone unless she wishes this. Many women report that they and/or their birth partner were 'left alone and worried at some time during labour' (CQC, 2010).
- **'Build her a nest' (RCM, 2010).** Make the birth environment welcoming: prepare the room before she arrives.
  - Mammals like warm dark places to nest, so keep it relaxed with low lighting.
  - Remove unnecessary monitors/equipment.
  - Noise, particularly other women giving birth, can be distressing; low music may help cut out such noise. Avoid placing a woman arriving in labour near someone who is noisy.
  - Keep interruptions to a minimum; always knock before entering a room and do not accept anyone else failing to do this.
  - If there is a bed, consider pushing it to the side so that it is not the centrepiece (NCT, 2003).
- **Eating and drinking.** Women often want to eat in early (rarely later) labour. Drinking well will prevent dehydration, and a light diet is appropriate unless the woman has recently had opioids or is at higher risk of a general anaesthetic (NICE, 2007; Singata *et al.*, 2010). Ensure her birth supporters eat too.
- **Basic observations (see Table** 1.1**).** Little evidence supports many routine labour observations (Crowther *et al.*, 2000; NICE, 2007), but NICE (2007) recommends hourly pulse (checked simultaneously with the fetal heart rate (FHR)) BP, and 4-hourly temperature. Consider hourly temperature if water birth (see Chapter 7).
- **Frequent micturition** should be encouraged, but urinalysis in labour is probably pointless.
- **Observe vaginal loss**, e.g. liquor, meconium, blood and offensive smell.
- **Do not offer a shave or enema!** Fortunately in the UK the days of routine enemas and pubic shaves have long gone, since they are at best ineffective and at worst embarrassing, painful and harmful; leading paradoxically to increased infection rates (Basevi and Lavender, 2001; Reveiz, 2007). Very occasionally a loaded rectum

can be felt, on VE or the woman may report she is constipated. A couple of glycerine suppositories may bring relief.

- **FH auscultation.** NICE (2007) recommends every 15 minutes for 1 minute following a contraction. Midwives may disagree with this guidance that is based on (largely obstetric) opinion rather than clear evidence, and does not cater for the individual. Midwives may choose to monitor less than every 15 minutes early in labour or, more frequently, at other times, e.g. following SROM or a VE. See Chapter 3.

Assessing progress in labour

'Justify intervention' (RCM, 2010).

Unless birth is imminent, most midwives undertake *abdominal palpation* when taking on a woman's care and, periodically thereafter, to ascertain the lie, position and presentation of the baby. Engagement is particularly helpful to monitor descent of the presenting part and thus labour progress (see Figure 1.1). However, some women may find this examination painful, particularly in advanced labour.

Labour progress can also be judged *observationally*: by the woman's contractions and her verbal and non-verbal response to them (Stuart, 2000; Burvill, 2002; see Table 1.2). Some midwives also observe the 'purple line', present in 76% women, which may gradually extend from the anal margin up to the nape of the buttocks by full dilatation (Hobbs, 1998; Shepherd *et al.*, 2010).

Vaginal examination, artificial rupture of the membranes and partograms

VEs in labour are an invasive, subjective intervention of unproven benefit (Crowther *et al.*, 2000) but are the 'accepted' method for assessing labour progress (see Chapter 2). It can be difficult for woman to decline a VE or for the midwife to perform one only when she/he feels it is best indicated. Even in low-risk births, midwives often feel pressured to adhere to medicalised guidelines which lack good evidence.

NICE (2007) recommends:

- Four-hourly VEs in the first stage of labour.
- Cervical dilatation of 0.5 cm/hour as reasonable progress.
- A 4-hour rather than 2-hour action line on the cervicogram/partogram. This appears to reduce intervention for primigravidae with no adverse maternal or neonatal outcomes, although Cochrane review found no benefit to the cervicogram/partogram per se, but acknowledges there would be difficulties in removing it from practice (Lavender *et al.*, 2008). For more on partograms and assessing progress see Chapter 9.
- Artificial rupture of the membranes (ARM) should not be performed routinely and may not significantly improve normal labour duration (NICE, 2007). The decision should be made in consultation with the woman, discussing evidence, with the intervention justified and not minimised (RCM, 2005). See Chapter 2 for more on ARM.
- *Document* care on partogram and in notes, including any problems, interventions or referrals (for more on record keeping see Chapter 22).

Table 1.2 Contractions and women's typical behaviour up to full dilatation.

Cervical dilatation	0–3 cm	3–4 cm	4–7 cm	7–9 cm	9–10 cm
Frequency of contractions	May be irregular and sometimes stop Gradually increasing in frequency	2:10 minutes Increasingly regular, lasting 20–40 seconds	3:10 minutes Regular, lasting ≤60 seconds	3–4:10 minutes Regular, lasting ≤60 seconds	4–5:10 minutes Sometimes almost continuous, although can 'fade away' for a while in transition
Pain of contractions	Varying from painless/ mild/stronger	Becoming more painful but usually bearable		Increasingly painful	Often almost (sometimes completely) unbearable pain although if in transitional stage may have some respite
Behaviour	Chatty, nervous, excited, able to make jokes and laugh. Often able to talk through contractions May use learned breathing techniques too early, and need reminding to pace herself		Withdrawing more Deeper 'sighing' breathing Sense of humour fading	Becoming vocal: crying out with some contractions May express irritation when touched	Appears withdrawn, in another world May not reply, or answer sharply Concentrating on breathing which slows and deepens with a contraction Throaty grunting noises, crying out with expiration: may panic and express desperate ideas: 'I *can't do* this!'
Movement and posture	Mobile during contractions		Needing to stop and concentrate during contractions	Grasps abdomen and leans forward. May rock, curl toes	Less mobile, holding on to something during a contraction; often eyes closed, but may open wide in surprise with pushing urge

N.B. This is only a broad guide, intended to stimulate awareness of external signs. There is in reality no such thing as a 'typical labour' and women's behaviour will of course vary. Most women exhibit the above to some degree.

Analgesia

Pain is a complex phenomenon and a pain-free labour will not necessarily be more satisfying. Working with women's pain rather than alleviating it underpins many midwives' practice (Downe, 2004). Indeed many would argue that some degree of pain is an essential part of labour: 'as it stimulates the brain to release a cocktail of hormones, which in turn stimulate the uterus to contract' (Walsh and Gutteridge, 2011). Leap (2010) distinguishes between midwives who 'work with pain' and those who provide 'pain relief'.

Most midwives encourage natural and non-interventionist methods first, with pharmacological methods only if these methods are deemed insufficient.

Non-pharmacological analgesia

- **Massage and touch.** These can be powerful analgesics (Figure 1.2), encouraging pain-relieving endorphin release. Never underestimate the effect of being 'with woman'. Be sensitive however. Touch can be irritating or distracting, particularly in later labour. Labour can induce flashbacks for sexual abuse victims (see Chapter 2) and some women come from cultures where *any* non-essential touching by strangers feels invasive.
- **Distraction**, e.g. breathing patterns, music, television:

  'In labour I spend a lot of time in a monotone voice quietly talking women through a contraction. *Breath in through your nose,* (pause) *blow out from your mouth . . . let your shoulders drop, arms relax, unclench your hands. . . .* Next out breath I add: *let your legs relax and sink into the chair/bed etc . . . unclench your toes!!* I don't think this is hypnobirthing but it's working with each contraction and it seems to work!' (Midwife, personal communication).
- **Position changes with aids.** Upright postures reduce the intensity of pain (Lawrence *et al.*, 2009)**:** e.g. beanbags, wedges, stools and birthing balls (e.g. Figures 1.3 and 1.4).
- **Transcutaneous electrical nerve stimulation (TENS).** Despite conflicting opinions on its effectiveness, including possible placebo effect, many women report that it provides good analgesia, especially in the first stage of labour (Johnson, 1997): 20% of women use it (Healthcare Commission, 2008) and most say they would use it again (Dowswell *et al.*, 2009). There is no adverse effect on the mother or baby (Mainstone, 2004). However, lack of substantial non-anecdotal evidence has led NICE (2007) to conclude, controversially, that TENS should not be recommended in established labour. However, Cochrane review (Dowswell *et al.*, 2009) suggests research is insufficient and that women should have the choice of using TENS: many continue to hire TENS units, or borrow them from enlightened hospitals/birth centres.
- **Aromatherapy.** The use of essential oils may aid relaxation in labour. Oils should be diluted, preferably to half the usual dilution, in pregnancy. For a bath, adding the drops to milk prior to putting them in water helps them disperse. Some trusts have an agreed policy for use of oils in labour. Without this, a midwife who has not received any training in aromatherapy should be careful not to give uninformed advice to a woman in labour about the use of oils. Only oils known to be safe in pregnancy should be used: some are contraindicated in pregnancy (Tiran, 2000). Continuous vaporisation may impede concentration and have adverse maternal effects (Tiran, 2006).
- **Other methods, e.g. acupuncture/pressure, reflexology, shiatsu, yoga, hypnosis (including self-hypnosis), sterile water blocks, homeopathic and herbal remedies.** Normally only midwives trained in these specialist areas or qualified practitioners offer these therapies. Non-pharmacological methods are notoriously difficult to evaluate by standard research methods. Acupuncture, acupressure and hypnosis have been clinically proved to work (Smith *et al.*, 2006; NICE, 2007; Smith *et al.*, 2011a; Smith *et al.*, 2011b). A Cochrane review is underway to evaluate the effects of 0.1ml intradermal water injection (Derry *et al.*, 2011). Anecdotal accounts of interventions e.g. hypnobirthing yield extraordinary stories (http://www.hypnobirthing.co.uk).

Fig. 1.2 Hands on comfort: massage and touch.

Fig. 1.3 Kneeling forwards onto a pillow.

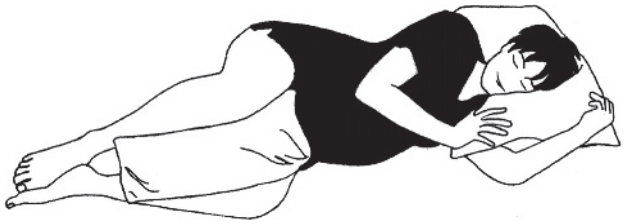

Fig. 1.4 Side lying.

- **Water.** Deep-water immersion has unique benefits. The opportunity to labour in water should be part of routine labour care. See Chapter 7.

Pharmacological analgesia

- **Entonox (nitrous oxide):** the most commonly used labour analgesic in the UK. There is little evidence on fetal/maternal effects; it appears fairly safe. Side effects are minor, e.g. dry mouth or nausea, but it is quickly excreted so effects wear off rapidly. Long-term exposure risks are well documented, including risk to pregnant staff with high labour ward workloads (Robertson, 2006).
- **Opioids, e.g. pethidine, diamorphine:** usually given intramuscularly (IM) but occasionally by patient-controlled analgesia. Antiemetics should be given prophylactically with opioids (NICE, 2007). Opioids can 'take the edge off' the pain for some women, inducing a feeling of well-being and allowing some rest. Many midwives recount stories of anxious, scared women who, on receiving pethidine, fall into a doze and wake up fully dilated. Arguably, this 'emotional dystocia' (Simkin and Ancheta, 2005) can be addressed in other ways, e.g. good caring support. There are considerable doubts about effectiveness of opioids and concern about potential maternal, fetal and neonatal side-effects. Maternal side-effects include nausea, vomiting and hypertension (Ullman *et al.,* 2010). Some women feel disorientated and out of control. Neonatal side effects include respiratory depression (which may require injection of the antagonist naloxone), subdued behaviour patterns, including a lack of responsiveness to sights and sounds, drowsiness and impaired early breastfeeding (NICE, 2007). Babies of mothers receiving opiates in labour appear more likely to become addicted to opiates/amphetamines in later life (Jacobsen *et al.*, 1988, 1990; Nyberg *et al.*, 2000).
- **Regional anaesthesia (epidural, spinal or combination)** aims to remove pain altogether from the lower half of the body, and is used by around a third of UK women for birth (NHS Maternity Statistics, 2007). Patient controlled analgesia using a pump connected via the epidural catheter gives women control and reduces breakthrough pain.
  - *Epidural anaesthesia*: administration of local anaesthetic and/or opiates into the epidural space around the spinal column
  - *Spinal anaesthesia*: an opiate, and sometimes anaesthetic drug injected through the covering of the spinal cord; faster and usually short-acting
  - *Combined epidural–spinal anaesthesia*: quicker (NICE, 2007) but gives no better pain relief than epidural alone (Simmons *et al.*, 2007).

For many women regional anaesthesia provides welcome relief from pain; if labour is complicated and/or slow, the risks may be of little consequence at the time. Women should be aware of those risks however (NICE, 2007): e.g. pyrexia, leg weakness, hypotension, poor mobility, longer labour, increased malposition, increased oxytocin augmentation and significant perineal trauma due to increased instrumental delivery (Leighton and Halpern, 2002; Lieberman and O'Donaghue, 2002; Howell, 2004, Anim-Somuah *et al.,* 2005). Cochrane review found no increase in CS, long term backache or immediate neonatal effects from epidural, although any use of opiates will result in some placental transfer, and decreased mother–baby interaction and poorer breastfeeding rates following epidural anaesthesia have been reported (Buckley, 2004b). However

if a woman really wants an epidural she should be able to have one if humanly possible. Ongoing publicity about midwives denying women epidurals in the belief that all women should give birth naturally, reflects a breakdown in communication between mother and midwife (http://www.birthtraumaassociation.org.uk/).

Increasingly in the UK low-dose epidurals, often rather optimistically known as 'walking epidurals', are being offered. These are intended to increase mobility, allowing a woman to adopt upright positions, and occasionally to stand or walk. It is hoped that she may be able to push more actively, and an increase in vaginal deliveries has been recorded (COMET, 2001). More research is needed into other possible effects; a Cochrane review is underway to assess the effect of upright positions with an epidural in situ (Kibuka *et al.*, 2009).

Care for a woman with regional anaesthesia includes

- intravenous (IV) access, hourly sensory block check and continual pain assessment
- BP monitoring every 5 min for 15 min, particularly following establishment of block and following any bolus administration (top-up) (NICE, 2007)
- continuous CTG for 30 min following establishment of block and following bolus (top up) (NICE, 2007)
- regular position changes and non-supine (NICE, 2007), side lying or all fours position (if possible) (Downe, 2004) with attention to pressure areas
- bladder care: in/out or continuous catheter; and
- avoidance of aortocaval compression.

Some epidurals provide only partial pain relief or none at all (Agaram *et al.*, 2009). A woman in this situation needs particular support. She may feel panicky and out of control. A midwife may have to be a very strong advocate for her; recalling the anaesthetist, possibly a more senior one. Sometimes little can be done, and the midwife will need to give great emotional support to a disappointed distressed women.

Mobility and positions

'Get her off the bed' (RCM, 2010).

Midwives are the major influence on whether a woman is free to mobilise. Actively encouraging mobilisation during labour is a fundamental component of good midwifery practice and is a safe, cost-effective way of reducing complications caused by restricted mobility and semi-recumbent postures, as well as enriching the woman's birth experience. Cochrane review found that upright positions shorten the first stage by around an hour, and reduce epidural use (Lawrence *et al.*, 2009).

Women's expectations of how to behave in labour, unfamiliar surroundings, the labour room bed, lack of privacy and medicalised care models, all inhibit mobility in labour. Most women labouring upright say they would do the same again; those labouring supine would prefer to be upright for a subsequent labour/birth (MIDIRS, 2007). However, 20% women report they were not enabled to choose the most comfortable position in labour (Redshaw *et al.*, 2007).

> *'Think about how you can help the woman to adopt other positions in labour – observe what works and what doesn't, and review when and why these positions were most successful.*

Your knowledge of anatomy can also help you to understand how different positions aid the physiological processes (e.g., the curve of Carus)' (RCM, 2005).

Try to witness other midwives or ask a colleague for support when the mother is giving birth in an unfamiliar non-supine position.

- Have you discussed with the woman in labour why it is important to mobilise in labour? By pointing out that labour is more likely to be shorter and less painful, you will give her 'permission' to move around freely and do what she feels is best for her.
- Women often get stuck on the bed following an examination or during electronic fetal monitoring (EFM). Suggest that she changes position or walks out to the toilet.
- Mind your back. Avoid twisting: try to be square to the woman, perhaps temporarily kneeling or squatting, depending on your preference and the mother's position.

Transition

Towards the end of the first stage contractions may become almost continuous or, conversely, space out a little. Many women may have a bearing down sensation at the peak of the contraction as the cervix approaches full dilatation. This stage may be the most painful and distressing. It can last a few contractions, but for some women it lasts much longer. Labour stress hormones peak; this has a positive effect in producing the surge of energy shortly needed to push (Odent, 1999; Buckley, 2004a).

'The diagnosis of the transitional stage . . . is a far more women-centred and subjective skill . . . essentially a midwifery observation and as such is dependent on knowing the woman . . . and recognising any changes in her behaviour. Progress can thus be diagnosed without the need to resort to a VE' (Mander, 2002).

The woman experiencing the 'extreme pain' of transition has a decreased ability to listen or concentrate on anything but giving birth. She becomes honest in vocalising her needs and dislikes, 'unfettered by politeness' (Leap, 2000)! This should not be misinterpreted by the midwife or birth partner as rejection or rudeness.

Typical behaviour may include:

- distressed/panicky statements: 'I want to go home!', 'Get me a caesarean/epidural!', 'I've changed my mind!';
- non-verbal sounds: groaning/shouting, involuntary pushing sounds;
- body language: agitated, restless, toes curling, closed eyes due to intense concentration and pain (Leap, 2000);
- withdrawing from activities/conversation of people around (Leap, 2000; Burvill, 2002).

Midwifery care in transition

Support birth partners. They can become tired, be stressed and want something done to help the woman. This common reaction sometimes leads to inappropriately timed

analgesia, e.g. epidural (Mander, 2002), with subsequent discovery of a fully dilated cervix. It can be a difficult judgement call for the midwife.

Keep it calm. Change the dynamics if the women panics; e.g. suggest a walk to the toilet, a position change or focus on her breathing.

Avoid the temptation of VE. Unless the woman really wants it, VE is likely to yield disappointment: at this stage it is painful and the cervix is often 8–9 cm dilated (Lemay, 2000).

To push or not to push? Telling women that they must not push when they cannot stop themselves at the end of the first stage is unnecessary and distressing for the woman (Sleep *et al.*, 2000). The belief that pushing on an undilated cervix will cause an oedematous cervix is based on very limited evidence (Perez-Botella and Downe, 2006). 20% of women, irrespective of parity experience an early pushing urge. Downe *et al.* (2008) found that those with the urge had a better chance of a spontaneous normal birth than those who didn't.

Second stage of labour

This is traditionally defined as the stage from full cervical dilation until the baby has been born. Usually, the actual time of onset is uncertain (Walsh, 2000b) as it is technically defined by VE. Long (2006) suggests 'redefining the second stage, so that the emphasis is placed on descent and station of the presenting part instead of cervical dilation'.

Lemay (2000) describes the majority of a primigravida's pushing phase as 'shaping of the head' rather than 'descent of the head':

> *'Each expulsive sensation shapes the head of the baby to conform to the contours of the mother's pelvis. This can take time and . . . often . . . is erroneously interpreted as "lack of descent", "arrest" or "failure to progress". I tell mothers at this time, "It's normal to feel like the baby is stuck. The baby's head is elongating and getting shaped a little more with each sensation. It will suddenly feel like it has come down".'*

Characteristics of second stage

The woman may experience/exhibit the following:

- **Vomiting,** often with contractions.
- **Show** or bright red vaginal loss.
- **Spontaneous rupture of the membranes** can occur any time but often at full dilatation.
- **Urge to push.** Powerful, expulsive contractions every 2–3 minutes, often lasting ≥60 seconds. Most women make a distinctive throaty expulsive sound at the peak of a contraction. Others may groan: 'I'm *push*ing!' This urge may precede full dilatation or occur some time afterwards.
- **Rectal pressure.** The descending presenting part exerts great pressure on the bowel. The woman often feels she needs to have her bowels opened and may do so.
- **External signs**, e.g. anal dilatation, bulging perineum, gaping vagina (see Figure 1.5).

Fig. 1.5 External signs of full dilatation. *Photo by Joy Horner (www.birthjoy.co.uk).*

Midwifery care in second stage

Duration of second stage

The NICE (2007) guidelines are more flexible than previous national guidelines, although others challenge second-stage time limits if there is progress and no fetal/maternal concern, suggesting no link between time per se and poor neonatal outcome (Sleep *et al.*, 2000; Walsh, 2000b). Some evidence suggests maternal morbidity increases >3 hours second stage (Cheung *et al.*, 2004) but there is also known maternal morbidity with the alternative: i.e. instrumental delivery (Sleep *et al.*, 2000; Dupuis *et al.*, 2004).

NICE (2007) suggests:

- Delay pushing for women with epidurals for at least one hour after full dilatation unless the head is visible or the woman has an urge to push: birth should take place within 4 hours.
- Perform a VE after an hour of 'active second stage' for nulliparous women, then offer ARM if membranes intact, and consider further analgesia.
- If no birth after 2 active hours (or 1 hour for multigravidae), then obstetric review every 15 min if no fetal well-being concerns: do not start oxytocin.
- Instrumental delivery after 3 hours of active pushing for a nulliparous woman and 2 hours for a multiparous woman.

Walsh (2000a) suggests that only allowing an extra hour before pushing if women have epidurals is illogical, since many women without epidurals may need to rest semi-recumbent for a while before pushing, and many writers including Odent (2000)

suggest that it is not full dilatation that makes women want to push: it is the descent of the head to the pelvic floor. Odent believes the true role of the midwife in the second stage is to protect the woman, to allow the fetus ejection reflex to be triggered.

Rightly or wrongly, midwives have been known to 'fudge' VE results in the face of restrictive policies, claiming that a woman has an anterior lip, to allow her more time without intervention.

Vaginal examination. It has become the norm for full dilatation to be confirmed by VE. It should not be automatic, particularly for multigravidae or if external signs are evident.

Monitoring the fetal heat rate. NICE (2007) recommends auscultation every 5 minutes in the second stage following a contraction. As the baby descends the FH can be difficult to locate and monitoring may feel invasive/uncomfortable. Early decelerations are more common in the second stage due to head compression, sometimes becoming variable, late or leading to bradycardia due to cord compression (see Chapter 3).

Pushing

Bergstrom *et al*. (1997) ask, 'Why does the clinician's definition of second stage take precedent, regardless of what the woman's body is instinctively doing?'

Bergstrom *et al*. describe how midwives expend great energy discouraging a woman from pushing prior to confirmation of full dilatation, and then coerce her into exaggerated active pushing once full dilatation is confirmed. As stated earlier, there is no evidence that cervical swelling occurs with premature pushing (Walsh, 2000b) and active pushing is known to do more harm than good (see also Chapter 2, 'Anterior lip', page 45).

Enable spontaneous involuntary pushing. Women simply push as they wish; most take a short breath, hold their breath for up to 6 seconds as they bear down and then give an expiratory grunt (Thomson, 1995). They may give multiple short pushes with a contraction.

Push only when ready. Women naturally push as the contraction builds up and the urge is present. The earliest part of the contraction pulls the vagina taut, preventing it from being pushed down in front of the descending presenting part (Gee and Glynn, 1997).

Forced pushing (valsalva). Directed, prolonged breath-holding/bearing down (Sleep *et al.*, 2000), particularly if held for ten seconds or more, can result in FH abnormalities, lower Apgars, perineal trauma, episiotomy, instrumental birth (Thomson, 1995; Sleep *et al.*, 2000; Lemos *et al.*, 2011), pelvic dysfunction and urinary incontinence (Schaffer *et al.*, 2005).

Try stopping pushing or even trying to 'suck the baby back in' for a few contractions if pushing feels ineffective: paradoxically (perhaps it is psychological) some women find that this increases their pushing urge (Lemay, 2000).

Pushing with an epidural. Many women do not experience a pushing urge and may need more direction. Delaying pushing for 1-2 hours (Roberts *et al.*, 2004) and allowing a 3–4-hour second stage (NICE, 2007), may help achieve a normal delivery and avoid complications (Simpson and James, 2005). Discontinuing the epidural can be distressing for the woman and does not increase the spontaneous birth rate (Torvaldsen *et al.*, 2004).

Slow progress may be normal for that woman or problematic (see Chapter 9).

Fig. 1.6 Supported squat (second stage).

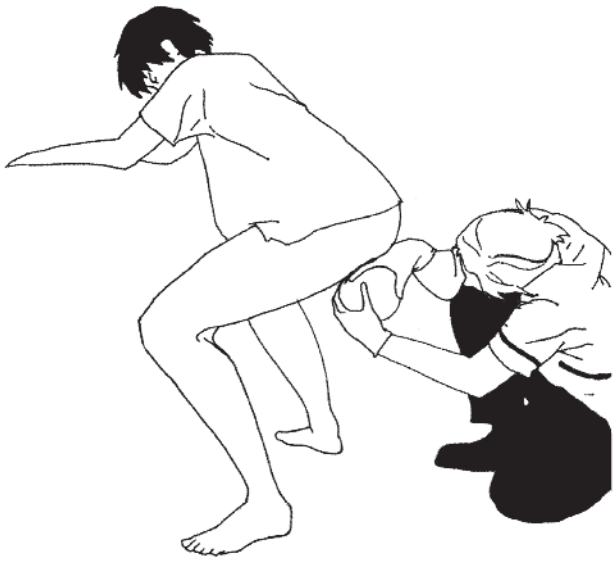

Fig. 1.7 Standing/hanging from a bed (second stage).

Verbal support. Speak soothingly, give simple explanations and praise the woman for doing so well. Insincere, over-effusive praise sounds false. Most midwives instinctively know the right thing to say and when to say it.

Birthing positions. Squatting, kneeling or side-lying, as opposed to lying semi-recumbent, increases the maximum pelvic outlet significantly. Gravity-enhancing upright positions (Figures 1.1, 1.3, 1.5, 1.6 and 1.7) appear less painful and may shorten

the second stage compared with supine or lithotomy positions which increase fetal heart anomalies, dystocia, episiotomy and instrumental delivery (Gupta *et al.*, 2012; RCM, 2005). Side-lying appears to reduce perineal trauma the most, while squatting may increase it (Shorten *et al.*, 2002; Bedwell, 2006). Blood loss appears higher following upright birth (Gupta *et al.*, 2012), but this may be due to the ease of measuring blood loss when upright. Upright positions may also benefit the perineum in making episiotomies difficult to perform (Albers *et al.*, 2005): as a result there are more second-degree tears instead (Gupta *et al.*, 2012). Many women instinctively take up the position that feels right for them if encouraged to do so.

Amazingly a survey of 25 000 mothers in England found that only 13% gave birth in an active position, i.e. standing, squatting or kneeling (CQC, 2010). Over half the women experiencing normal deliveries gave birth lying down (54%), while 16% of 'normal' births occurred in stirrups, something which shocked the NCT: . . . 'it seems we have gone back in time to the 'production line' approach where . . . active birth is not promoted despite all the known benefits' (Phipps, quoted by Duff, 2011). Most midwives will admit that occasionally trying a semi-recumbent position – even stirrups – will sometimes shift a baby that is stuck, and there is no position that is per se undesirable. We have all also seen women who labour in an upright position then suddenly turn on their back to give birth. However it would be straining good sense to suggest a 13% upright birth rate reflects good practice.

The birth

As the birth approaches the perineum bulges, the vagina gapes and the anus flattens. Often the woman opens her bowels when pushing. The presenting part becomes visible, advancing with contractions. The 'fetal ejection reflex', a surge of birth hormones, including oxytocin and catecholamines, increases the energy needed to expel the baby (Odent, 2000). The woman may cry out as she feels the stretching, burning sensation of the stretching perineum. She may be immensely focused or, conversely, may panic, and writhe around, maybe even resisting pushing because of the pain.

Low lighting and privacy. There is no justification for putting on bright fluorescent lights. They are harsh and likely to cause a stress reaction, inhibiting natural oxytocin production. Birthing mammals tend to prefer darker environments and need nests where they feel safe (Johnston, 2004). A light source near the perineum may reassure some midwives who wish to view the perineum, but continual staring and focusing on the perineum and/or the woman's face may put her under pressure and make her feel exposed. This can feel particularly voyeuristic for sexual abuse victims (Kitzinger, 1992). Also consider the baby: the transition from womb to outside world is likely to be quite a shock as it is, without a bright light shining into its eyes.

Reassurance. This can be a key moment where trust between midwife and woman staves off panic. A calm voice telling her she is nearly there, that she can do it, can help get her through this most challenging of episodes. Try to minimise noise: the mother may sob, grunt, moan or even scream at the point of birth, but there is a big difference between a woman's need to cry out and the cacophony of shouting and exhorting that birth supporters sometimes create. While there is occasionally a place for an energy injection from onlookers, midwives need to be very skilled to avoid the woman feeling shrieked at by tense carers. Imagine the difference for the baby if it is

born into a peaceful room, perhaps with its mother's or father's voice the first that it hears.

Warm moist compresses may be soothing and have been found to reduce perineal pain and the incidence of severe trauma (Aasheim, 2011). Some women may prefer a cool compress.

Perineal massage in labour is invasive and appears ineffective; NICE (2007) recommends avoiding it in the second stage. This is again for the woman to decide: some find any perineal touch excruciating now.

Episiotomy is performed much less often these days: around 20% of UK births (ONS, 2012). Some clinicians do none at all. It is justified only for suspected fetal compromise (Sleep *et al.*, 2000) or some instrumental deliveries (NICE, 2007). It should not be routinely offered for a previous third/fourth-degree tear as it confers no protection (NICE, 2007). Avoid in your impatience classifying an uncomplicated slow delivery as a 'rigid perineum' – this is rare. Even if you think the perineum is about to tear, there is more chance of an intact perineum if you wait and see. Cochrane review suggests restrictive episiotomy reduces perineal trauma, suturing and complications, doesn't affect pain measures or severe vaginal/perineal trauma, but increases risk of anterior perineal trauma. The benefits of midline versus mediolateral episiotomy are unclear (Carroli and Mignini, 2009), although NICE (2007) recommends mediolateral (with tested effective analgesia – unless in an emergency).

Head awareness. The woman may wish to touch her baby's head or watch in a mirror as she pushes. Some women find this encouraging, while others absolutely do not want to touch or watch.

Slow birth. Controlled pushing of the crowning head between contractions appears to reduce perineal trauma (Albers *et al.*, 2005): also a calm relaxed atmosphere may help (Jackson, 2000). At the point of crowning some midwives encourage gentle shallow breaths and slow small pushes.

Hands on or poised? Whether midwives put hands on (flexing the head and touching the perineum with the other hand) or off (both hands off but poised to prevent the baby emerging rapidly) does not appear to significantly affect perineal trauma (McCandlish *et al.*, 1998; Caroci and Riesco, 2006; NICE, 2007). Neither appears to do harm so this is an individual decision.

Await restitution. While some babies deliver quickly, most await the next contraction for the shoulders to rotate into the anteroposterior diameter, as the baby's head appears to turn. With the next contraction (or earlier) the shoulders should gently emerge. This final contraction may take ≥2 min to arrive. Beware of overdiagnosing shoulder dystocia (see Chapter 17). Two minutes can seem like a long wait. Resist the urge to apply traction before the next contraction.

Checking for cord. This is often painful, usually unnecessary and may cause posterior wall tearing (MacLellan and Lang, 2011). Unless the baby seems slow to deliver, untangle any nuchal cord after the birth (ARM, 2000). If the cord (not an impacted shoulder) genuinely seems to be preventing delivery then clamp and cut, but remember you have now removed the baby's oxygen supply; birth should be imminent to prevent neonatal compromise.

The moment of birth (Figures 1.8 and 1.9). Do not rush to deliver the body; perineal damage can occur with a shoulder or a hand. A gentle unhurried birth of the body is just as important as the head. The mother or father may wish to put their hands down as well and feel the baby birthing. The midwife should already have checked that the

Fig. 1.8

Fig. 1.9

Box 1.4 The benefits of skin-to-skin contact.

Immediate skin-to-skin (SSC) contact between mother and baby appears to

- Improve mother and baby interaction at birth
- Keep babies warmer
- Decrease infant crying
- Improve neonatal heartrate and respiratory stability
- Make breastfeeding more likely, and improves duration of breastfeeding
- Probably improve the early relationship between mothers and babies
- There appear to be no short-term or long-term negative effects.

(Moore *et al.*, 2012)

It also appears to help maintain neonatal blood sugar: failure to offer SSC or early breastfeeding may be one reason why too many babies of diabetic mothers are admitted to NICU (CEMACH, 2007).

Benefits of fathers offering SSC

- Fathers offering SSC to preterm babies felt earlier positive feelings towards them (Sullivan, 1999)
- Babies given SSC with their fathers following CS cry less and appear calmer (Erlandsson *et al.*, 2007)

Preterm babies appear to benefit too! See Chapter 13.

mother is happy to have her baby put straight into her arms for immediate skin-to-skin contact (see Box 1.4). Occasionally, parents are squeamish in advance about wet bloodstained babies, but the reality is usually quite different. Most women will reach out instinctively to their baby.

Third stage of labour

There are two options for assisting the third stage of labour: (a) physiological (expectant) management or (b) active management. There are various controversies around both methods.

- NICE (2007) recommends **active managemen**t with **early cord clamping**, but states that women requesting physiological management should be supported. The World Health Organization recommends **active management** with **delayed cord clamping** (DCC) of 1–3 minutes (Begley *et al.*, 2010).
- The RCM (2012) recommends DCC of 3–5 minutes if active management is practised, while the RCOG (2009) state "the cord should not be clamped earlier than necessary, based on a clinical assessment of the situation".
- Physiological management is suitable if the woman has had a physiologically normal labour and birth (no epidural, no IV oxytocin).

Pros and cons of physiological versus active management

- Active management is usually quicker: typically 5–20 minutes versus 20–60 minutes for expectant waiting. Some women want the whole thing over with quickly so they opt for an oxytocic.

- Some women simply want a natural delivery of the placenta and dislike the idea of receiving drugs.
- Active management reduces blood loss immediately following birth, so it is advisable for anyone at significant risk of immediate postpartum haemorrhage (PPH) (Prendiville *et al.*, 2004).
- Overall blood loss by 36 hours is similar with active or physiological management (Wickham, 1999) so long-term effects appear similar for both methods. No-one really knows what is an optimal blood loss immediately following birth.
- Cochrane review found active management increases the risk of later readmission with bleeding, and increases oxytocin side-effects, i.e. headache, nausea, vomiting and severe afterpains (Liabsuetrakul *et al.*, 2007; Begley *et al.*, 2010).
- Neither method appears to have any significant ill effects on the baby (Prendiville and Elbourne, 2000; Begley *et al.*, 2010).

All midwives should be knowledgeable about both methods of third stage management. Some lack experience/confidence in physiological management, having assisted few physiological third stages and have never really learned what to do – and what, more importantly, not to do.

Physiological third stage (expectant management)

If the woman has had a positive birth followed by unhurried, quality contact with her newborn, this will facilitate oxytocin release (Odent, 1999), which stimulates uterine muscle contraction. Breastfeeding and/or nipple stimulation will also increase natural oxytocin. The woman may use her contractions, upright postures and maternal pushing efforts to aid placenta delivery, or it may just suddenly emerge.

Midwifery care for a physiological third stage

The key to good support is 'watchful waiting'. If all appears well then resist the urge to intervene! An anxious clock-watching midwife is likely to unsettle the woman and interfere with oxytocin release.

Do not

- Administer an oxytocic (unless there is heavy bleeding: if so, proceed to active management).
- Repeatedly palpate the uterus ('fundal fiddling'!). This is painful, causes poor contractility and increases PPH risk.
- Apply cord traction.
- Clamp the maternal end of the cord. If mother and baby need to be separated (e.g. the mother wishes to move from a pool to deliver the placenta and/or the cord is short) Levy (1990) suggests clamping the baby's end of the cord and then cutting, leaving the maternal end of the cord free to bleed into a bowl. Indeed recent Cochrane review (Soltani *et al.*, 2011) suggests that there may be benefits to *routinely* cutting the cord and allowing the maternal end to drain, but this is by no means accepted practice at present. It seems wise to recommend cord cutting only if essential during physiological management , in view of the possible benefits to the

baby of delayed cord clamping. If planning to cut the cord, wait until it has stopped pulsating so that the baby receives plenty of maternal blood, unless the situation is urgent. If the cord has to be cut quickly for whatever reason, there may be a benefit in milking the cord (two or three times along the whole length of the cord towards the baby) before clamping to increase neonatal blood volume expansion and haematocrit and haemoglobin levels (Mercer and Erikson-Owens, 2010).

Do

- Encourage skin-to-skin contact.
- Encourage breastfeeding to increase oxytocin levels (consider nipple self-stimulation if not).
- Keep the mother warm and comfortable; avoid loud noise and bright lights.

Watch blood loss and observe for signs of separation, e.g.:

- Cord lengthening
- Trickle of blood/small clots
- The woman may groan, feel a contraction or (sometimes slight) pushing urge
- Visible placenta at vagina.

Assist her to an upright posture, e.g. kneeling, squatting or sitting: gravity will help her birth the placenta.

Push with a contraction; expulsive efforts are usually more effective then.

If the placenta does not emerge after several attempts, relax and wait before trying again. Try changing position:

'Sure enough, the moment I moved, out it came – masterfully caught by a midwife with a kidney dish and reflexes a rattlesnake would be proud of' (Brenda (mother) http://www.homebirth.org.uk/thirdstage.htm 2012).

A quiet darkened room may reduce stress hormones and increase oxytocin production. Some midwives, especially at home, encourage the mother to sit on the toilet with the lights dimmed; perhaps the one place where a woman feels truly private and undisturbed. If the woman has tried pushing, utilising gravity, changing position, breastfeeding and passing urine, you may wish to check that the placenta has actually separated: a gentle VE may reveal the partially/totally separated placenta in the os or vagina.

If the placenta is slow, but there is no heavy bleeding, then encourage the baby to nuzzle and feed at the breast. Encourage the woman to relax . . . and try to do the same.

Most women (95%) deliver the placenta within one hour of physiological third stage (NICE, 2007); multiparous women average 20 minutes (Begley, 1990). There is little good evidence to guide midwives in the safe time to wait for the placenta, as most PPH studies look only at active management. NICE (2007) recommends proceeding to active management (oxytocic + cord traction) after one hour, citing one study suggesting PPH risk rises after 30 minutes, peaking at 75 minutes with both active and physiological management (Combs and Laros, 1991), but this old US data (i.e. 1976–1985) may not be applicable to current UK physiological management.

Active management of the third stage of labour

Active management usually achieves placenta delivery within 10–15 minutes of birth. Initial blood loss is reduced (Prendiville and Elbourne, 2000; Begley *et al.*, 2010).

- **Give a prophylactic oxytocic** after delivery of the anterior shoulder or following birth. Syntometrine (ergometrine-oxytocin) is commonly used: Cochrane review suggests it reduces blood loss of 500–1000 ml (but not >1000 ml) more effectively than oxytocin alone (McDonald *et al.*, 2004) but has side-effects of hypotension, nausea and vomiting. NICE (2007) recommends oxytocin (Syntocinon) 10 IU IM, stating it appears as effective as syntometrine at preventing haemorrhage and reduces the likelihood of retained placenta.

Box 1.5 Benefits of delayed cord clamping (DCC).

Some prefer the expression 'physiological cord clamping' as 'delay' implies that immediate cord clamping is normal, and a 'delay' a deviation from the norm (Main, 2012). We use 'DCC' – with reservations – here, as most research uses it.

- DCC expands neonatal blood volume by 20–50%, increasing neonatal haemoglobin and haematocrit (Prendiville & Elbourne, 2000; Mercer & Erikson-Owens, 2010). Iron deficiency at 4 months of age is significantly reduced by DCC of three minutes or more with no increased risk of jaundice (Andersson et al., 2011).
- DCC may reduce fetomaternal transfusion, benefiting rhesus negative mothers delivering rhesus positive babies (Prendiville & Elbourne, 2000).
- DCC particularly benefits babies in developing countries, reducing anaemia, which is more common there (NICE, 2007) but Andersson (2011) suggests that the benefit to babies born even in countries with low anaemia prevalence means that DCC should be universal.
- Current UK Resuscitation Council (UKRC) guidelines recommend DCC for *at least* 1 minute, or until the cord stops pulsating; also for vigorous preterm babies who benefit more, so should have a longer DCC period than term babies (Richmond & Wiley, 2010).
- Possible small increase in jaundice (Hutton & Hassan, 2007; McDonald & Middleton, 2008) although increased need for phototherapy outweighed by other benefits. Other meta-analyses suggest no increase in symptomatic polycythaemia/jaundice (Vento *et al.*, 2009).
- DCC can be performed after CS with the baby on the mother's legs or chest (Cernadas *et al.*, 2006).
- DCC may benefit a baby requiring resuscitation (NLS, 2010). Why cut off a major source of oxygen to an already compromised baby? Consider leaving the cord uncut initially, bringing the ambubag to the mother and baby; give the recommended first 90 seconds of inflation in air on the bed/floor in front of the mother. Paradoxically the compromised baby is usually the quickest to be whisked away from its mother to a resuscitaire: arguably these babies benefit most from DCC.
- Milking the cord towards the baby before clamping may help if early separation is necessary, e.g. for continued resuscitation (Mercer & Erikson-Owens, 2010).
- Some believe that placing the baby lower than the mother significantly increases mother–baby blood flow (for good or ill) but little evidence supports/refutes this (Airey *et al.*, 2010).

- **Clamp and cut the cord.** Some mistakenly believe the cord should be clamped immediately, even prior to giving an oxytocic, to avoid neonatal overtransfusion, leading to jaundice. It is sad to see inexperienced staff frantically trying to close a cord clamp in the quickest possible time, with shaking hands, as if something terrible is about to happen if that cord is not clamped! This is a misconception. Firstly,

if Syntocinon has been given IM as NICE suggests, which may take more than 2 minutes to take effect through an intramuscular route (Crafter, 2002), then clamping the cord before two minutes is mixing physiological and active management, and, at the very least, unnecessary. Secondly, there is ample evidence that delayed cord clamping (DCC), even after early oxytocic administration, is beneficial: see Box 1.5. Main (2012) points out that the baby has received continual maternal-fetal transfusion with labour contractions, up to 500 ml every 2–3 minutes (Ndala, 2007) so an additional transfusion following birth is unlikely to be excessive.

- Once the decision has been taken to finally cut the cord, Cochrane review suggests **unclamping the maternal end** and allowing it to drain into a bowl reduces the length of the third stage, and slightly reduces blood loss (Soltani *et al.*, 2011).
- **Deliver the placenta by controlled cord traction.** while guarding the uterus with the other hand, typically several minutes after the administration of the oxytocic. Many midwives wait for placental separation first, i.e. a small gush of blood indicating that the placenta has sheared off the uterine wall, as traction prior to separation is believed to cause pain and risk haemorrhage.
- **Retained placenta.** NICE (2007) defines a 'prolonged third stage' as an undelivered placenta after 30 minutes active management since PPH risk increases after this time. It may be necessary to proceed to manual removal of placenta (MROP) under regional or general anaesthesia, although there is some interesting evidence that oral tocolytics e.g. nitroglycerin tablets may reduce the need for MROP (Abdel-Aleem *et al.*, 2011). (See Chapter 16 for PPH management/MROP.)

Possible third-stage problems (physiological or active management)

The placenta is delivered, but the membranes remain stuck:

- Suggest that the mother gives a few good coughs: this usually releases the membranes and they slide out.
- It is also possible to gently twist the placenta round and move it up and down, to coax the membranes out (Davis, 1997).

Bleeding is heavy, gushing or continuous:

- Rub up a contraction.
- Administer oxytocic: local policy may apply. Syntocinon may be preferable to Syntometrine/ergometrine if the placenta is still in situ as the latter cause the cervical os to close (Crafter, 2002) but ergometrine is faster acting; consider IV administration if giving Syntocinon.
- Refer to Chapter 16 for full PPH management.

Following delivery of the placenta

Check the uterus is well contracted and blood loss normal. Examine the placenta: some women are fascinated by their placenta and wish to watch.

After the birth

Immediately after the birth. Women's reactions vary enormously. Some may enjoy being congratulated: others are in their own new world at this point and simply do not know the midwife exists. Stand back: let her or her birth partner explore the baby to discover the sex; resist the urge to talk loudly or take control unless it is clear that guidance is wanted. Feel free to smile a huge smile!

The baby. Babies are individuals too and may have had a hard birth. Some gaze calmly around: others cry pitifully and need lots of comfort. Mothers instinctively use a unique high soothing voice to their newborn.

Babies are vulnerable to heat loss. Keep the baby snuggled up with its mother and/or birth partner for skin-to-skin contact for as long as they want. A warm hat and blanket over the outside of the mother and baby will keep them both warm. For babies needing **resuscitation** see Chapter 18.

For **examination of the newborn** see Chapter 5.

Breastfeeding. As with labour, it is important for midwives to 'sit on their hands' at this point: try to minimise interruption, giving the mother and baby space to explore each other. Most babies are very alert immediately after a natural birth. They will readily root towards the breast, nuzzle, lick and suckle when they are ready. The first hour after birth is a special time. Some animals are known not to attach to their young unless they are able to lick and smell them immediately after birth (Buckley, 2004b).

Examine the perineum (see Chapter 4) for trauma when the woman is ready. Many will want this to be over as soon as possible so that they can relax and enjoy their baby.

Offer analgesia. Multigravid women, in particular, can experience strong afterpains, and all women are vulnerable to perineal and rectal pain, even with an intact perineum. Excessive perineal pain may indicate a haematoma (see Chapter 16).

Records. Carefully record the birth. Computer details are usually also required. This gives the opportunity for a physical and psychological break for the midwife who may have been under intense pressure for some hours. Most parents relish being left on their own to explore and enjoy their baby. Others may prefer to have a midwife hovering. Most of the paperwork can be done in the room so be flexible.

Think about the birth partner. They can feel exhausted, overwhelmed and even traumatised by experiencing birth. Congratulate them on their support; show that you realise their needs are important. Remember they, like their partner, may need time later to recount their story.

Offer food and drink. There is nothing like the smell of tea and toast in the middle of the night to remind you a baby has been born.

Get her settled. The mother should not be hurried to have a bath or move to a fresh bed: some will feel the need to freshen up earlier than others. If the birth is at home, she can have all the time in the world. The 'routine' postbirth bath has become almost a ritual after birth for many midwives: many mothers (and babies) may enjoy the experience but some mothers may be too tired to want to move. It has been suggested that some shivery women may value being warmly wrapped and left for some time (Simkin and Ancheta, 2005): the cooling by evaporation that occurs following a bath may chill them further. Bathing should be optional, not routine practice.

Post-birth check. Check pulse, temperature, blood pressure, fundus and lochia. Encourage her to pass urine, within six hours of birth if possible, and measure the first void. On a busy labour ward there is often pressure to transfer the woman quickly to

the postnatal area. Sometimes this is just habit, and midwives are pressured to rush even if the labour ward is quiet. Resist this coercion. Sometimes, however, it is necessary for the safety of other mothers who may need a birth room and the midwife's attention imminently. If this is necessary, consider continuing skin-to-skin contact by suggesting that the baby bathes with the mother if she wants a bath, or goes to the father for skin-to-skin contact, and/or tucks inside the mother's or father's clothes for further contact during transfer to the postnatal area.

Summary

Latent phase

- Ideally spent at home
- Women may need lots of support if prolonged

Established first stage

- Continuous midwifery support is effective analgesia
- Encourage:
  - Mobilisation and position changes
  - Regular bladder emptying, eating and drinking
  - Natural coping methods
- Observe/monitor:
  - Basic vital signs, contractions and woman's response
  - Progress/descent by palpation and VE (if required)
  - FHR intermittently unless concerns
- Avoid:
  - Unnecessary VE/ARM/other interventions
  - Arbitrary time limits

Second stage

- Monitor descent by external signs, palpation and/or VE
- Auscultate FHR intermittently unless concerns
- Encourage:
  - Upright posture, non-directed pushing
  - Low lighting, privacy
  - Slow, gentle birth, immediate SSC
- Avoid:
  - Non-indicated episiotomy
  - Arbitrary time limits

Third stage

- Physiological management:
  - Leave cord unclamped (or cut and leave maternal end unclamped).
  - Encourage SSC and breastfeeding.
  - Deliver by maternal effort. Hands off!

- Active management:
  - Give oxytocic: NICE recommends syntocinon 10 IU IM.
  - Consider DCC for at least 3–5 minutes or until cord stops pulsating.
  - Controlled cord traction with fundal guarding.

Useful contacts and information

An amazing video on life from conception to birth using scanning technology that won its inventors the Nobel Peace Prize. http://www.youtube.com/watch_popup?v=fKyljukBE70

Association for Improvements in the Maternity Services (AIMS). www.aims.org.uk

Doulas UK. www.doula.org.uk

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National Childbirth Trust (NCT). www.nct-online.org

Nursing and Midwifery Council (NMC). www.nmc-uk.org

Royal College of Midwives (RCM). www.rcm.org.uk

RCM position paper on normal birth (2010): www.rcm.org.uk/college/policy-practice/guidelines/rcm-position-statements/position-statements/

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